REMARKS/ARGUMENTS

Claims 8-17 are pending in the present application. Claims 8, 12 and 16 are presently amended. The minor amendments made to claims 8, 12 and 16 find support throughout the original specification as filed, and thus no new matter is introduced by these amendments and no additional search of the relevant art is entailed.

Rejections under 35 U.S.C. § 102 in view of Wiltzer (US Patent 6,107,449)

The Examiner has rejected claims 8-13, 15 and 17 of the present invention under 35 U.S.C. § 102 as anticipated by Wiltzer U.S. Patent No. 6,107,449.

Applicant respectfully disagrees with the Examiner's views. While Applicant comments that both the present application as well as the cited Wiltzer patent might define a "first step," however, this first step is performed in distinct and different ways between the cited reference and the present application. With the cited Wiltzer patent, the first step is carried out under pressures at temperatures from 180 to 280° Celsius and, according to column 1, line 54 through 57 of the Wiltzer patent, this first step is performed with no driving-off of water. Water is only driven out in a second pressure reactor (*see* column 1, lines 65 through column 2, line 2 of the Wiltzer patent). In contrast, the present invention is distinct, in that the present invention features, in effect, that the reactors (8) and (11) of the Wiltzer patent are combined into one reactor in the present invention (*i.e.*, reactor (2)), wherein pressures and temperatures similar to that of the *first* pressure step in reactor (8) (*see* column 1, lines 54 through 57 of the Wiltzer patent) are used, but with the driving-off of water performed as with the *second* pressure reactor (11) of the Wiltzer patent.

Applicant also notes that while it is true that the "first" reactor (8) of the cited Wiltzer patent has a gas space, that gas space is closed and has no connection to a gas space of a subsequent reactor. This is in contrast with the present invention, wherein the gas space is "open" and connects to the gas space of the second reactor.

Furthermore, the second reactor (11) of the Wiltzer patent has means (12, 13, 14) for driving-off water from the gas space thereof, but again, that gas space does not have any connection to the gas space of a subsequent stage or reactor (which would be reactor (17) in the Wiltzer patent). This subsequent reactor (17) of the Wiltzer patent is comparable to reactor (5) of the present application.

Examiner's reference, on page 3, first paragraph, to column 2, line 55 of the Wiltzer patent, is unclear, as according to column 2, lines 54-58 of the Wiltzer patent, the pressure in the pressure reactor (11) is released to a pressure of 3 bar (overpressure), and the prepolymer (produced in the first reactor

(11)) is conducted past a devolatilizing area to improve water removal. It is expressly stated that "the excess of water is removed from the process under pressure control via the control valve (13) and the immersion vessel (14)." This is in complete contrast to the present application, wherein the excess of water is *not* removed from the process but is instead introduced into at least one subsequent stage, *e.g.*, stage 5 of the present invention.

Applicant respectfully turns now to pages 7 and 8 of the Office Action, and the Examiner's Response to Applicant's prior arguments, which relate closely to the remarks presented above. Applicants comment that Applicant's previous arguments, mentioned in the first paragraph of page 8 of the Office Action, are in fact *supported* by the above statements, in that column 2, lines 56-58 of the Wiltzer patent clearly indicate that the excess of water is removed from the process under pressure control via the control valve (13), so that in fact this excess of water is removed from the process and *not* fed to a second or subsequent reactor. The removal of water from the process at the high temperatures present at the first stage is the cause of significant energy loss, coupled with loss of valuable chemical components which are still contained in the expelled water.

In presenting his disagreement on page 8, second paragraph, of the Office Action, the Examiner argues that the Wiltzer patent teaches that the prepolymer (leaving reactor (8) of the Wiltzer patent) is conveyed via control valve (9) to a drying section (10).

However, Applicant notes, a drying section as described in the Wiltzer patent is completely different from a pressure reactor as per the Wiltzer patent, in that a drying section is simply a heat exchanger, without any pressure control *per se*, and without a gas space for separating and collecting water vapor from the melt. In a melt drying section, there is an intimate mixture of melt and water vapor, and only the temperature of the melt, and thereby the degree of vaporization of water contained in the melt, may be controlled. The pressure within the melt drying section (10) is determined by elements downstream thereof (*i.e.*, by the pressure reactor (11) of the Wiltzer patent), and the same applies to the amount of water vapor which is produced in the drying section but removed only in a subsequent downstream element.

To summarize the above ideas, the melt-drying section (10) of the Wiltzer patent does not have a gas space, but provides at the output of the drying section a mixture of the prepolymer and water vapor. There is no separation of water vapor from the melt in between the first reactor (8) and the second reactor (11), according to the Wiltzer patent.

Furthermore, Applicant reiterates that with the Wiltzer patent, the closed gas space of the first reactor (8) does not have any connection to the gas space of the second reactor (11) of the Wiltzer patent. Thus, the arrangement of the pressure reactor (8), the melt drying section (10) and the pressure reactor (11) of the cited Wiltzer patent neither anticipates the present invention, nor gives any hint or suggestion as to the improvements offered by the present invention.

Applicant observes that the first stage of the cited Wiltzer patent comprises the pressure reactor (8), the melt drying section (10) and the pressure reactor (11). The mixture of the starting components is fed into the pressure reactor (8), and the melt leaving the reactor (11) is fed into a second stage, comprising a postcondensation reactor (17). This second stage, comprising a postcondensation reactor (17), is comparable to the second stage (5) of the present invention, which also comprises a postcondensation reactor.

Therefore, with the present invention, in practical effect reactors (8) and (11) of the Wiltzer patent are combined into the first stage reactor (2) of the present invention. The starting components are fed into this first stage reactor (2). In considering the first pressure reactor (8) and the second pressure reactor (11) of the cited Wiltzer patent as being comparable to the first stage of the present invention, and the postcondensation reactor (17) of the Wiltzer patent as being comparable to the at least one further stage (5) of the present invention; nonetheless, such a set-up still does not possess a critical feature of claim 8 as presently amended, *i.e.*, "connecting that first gas space [of reactor (2)] with pressure control to said second gas space [of the at least one further stage (5)]." Applicant notes, in passing, that the following limitation of the claims, "such that water evaporated in the first stage," is presently amended to read, "such that water evaporated ~~in~~ into the first gas space of the first stage," so as to further clarify and more precisely claim that which Applicants intend as the present invention.

With this more reasonable consideration of pressure reactors (8) and (11) of the Wiltzer patent as the first stage of the present invention, and reactor (17) of the Wiltzer patent as the second stage of the present invention, it is now fully clear that the water evaporated into the gas space of the first reactor (11) is removed from the process via the elements (12, 13, 14) of the Wiltzer patent. There is no connection between the gas spaces of (first stage) reactor (11) and (second stage) reactor (17).

Applicants presently note that the arguments presented by the Examiner consider only the excessive water vapor or water still contained in the prepolymer or the polymer melt, but not the water vapors which already have been evaporated into a gas space of a respective reactor to reduce at least part of this excessive water vapor in a reactor. On page 9 of the Office Action, the Examiner contends that

the second reactor can be represented by a dryer. As set out above, this is not correct, as a dryer does not have a gas space, but rather provides at its output an intimate mixture of water vapor and melt. As may be seen in the Wiltzer patent, the melt drying sections (10) and (16) have their output connected to a gas space of the next following reactor, but again (as set out above), these gas spaces of the two reactors (10) and (17) of the Wiltzer patent are not connected with one another, but the excess of water is removed from the process separately in each stage (*see* column 2, lines 56 through 58 of the Wiltzer patent).

Therefore, even should one consider a dryer to be a reactor, this dryer still has no gas space itself, yet the output, if any, of the dryer is instead connected to a gas space *of a subsequent reactor*. Applicant trusts that the present amendment to claim 8 serves to clarify the distinction between the methods of the present invention and those set forth in the cited Wiltzer patent.

Returning now to page 3, of the Office Action and the remarks of the Examiner relating to the remaining claims, Applicant respectfully responds to a number of these remarks, in turn. With regard to claims 9, 13 and 17, Applicant notes that these are dependent claims, incorporating the limitations of independent claim 8 or 12, respectively, and thus these claims are distinct from the Wiltzer patent for the same reasons that claims 8 and 12 are patentably distinct, as discussed above.

The same reasoning applies to claims 10 and 15, which are also dependent claims (dependent to claim 8 and 12, respectively). Claim 11 has to be considered in connection with claim 8 (from which claim 11 depends), wherein it is set out that water expelled from the first stage is introduced into the gas space of the second or subsequent reactor. Applicant further comments that the temperature of the water expelled in the reflux column in the *first* stage (*i.e.*, reactor (11) of the cited Wiltzer patent and reactor (2) in the present invention) is much higher than 120°C.

In summary, Applicants believe that the methods of independent claims 8 and 12 as currently recited are patentably distinct from the previous methods of the cited Wiltzer patent. As such, Applicant believes that the Examiner's concerns have been addressed and that the basis for rejection of the present claims is obviated, and Applicant thus respectfully asks that the Examiner reconsider and withdraw the present rejections to claims 8-13, 15 and 17 under 35 U.S.C. § 102.

Rejection under 35 U.S.C. § 103(a) in view of Wiltzer (US 6,107,449)

Claims 14 and 16 are rejected on the basis of 35 U.S.C. § 103 (obviousness) over Wiltzer U.S. Patent No. 6,107,449 for the reasons provided at pp. 4-5 of the Office Action.

In response, the Applicant respectfully disagrees with the Examiner's views. Applicant notes that present claims 14 and 16 each depend from claim 12, and incorporate all of the limitations found therein. As claim 12, as presently amended, is neither anticipated or rendered obvious by the Wiltzer patent, thus claims 14 and 16—which take the limitations of claim 12 as a starting point and basic foundation—also cannot be deemed obvious. In truth, it is only in view of the present disclosure that one of average skill in the art would recognize and understand the value of using the present methods, including those of claims 14 and 16 (incorporating the limitations of claim 12), and be able to readily put the invention into practice without further undue effort. The Examiner is thus respectfully requested to reconsider and withdraw the rejection of claims 14 and 16 under 35 U.S.C. § 103.

Double Patenting Rejection

Claims 8-17 remain rejected on the ground of nonstatutory obviousness-type double patenting over claims 1 and 3 of Wiltzer U.S. Patent No. 6,107,449 for the reasons given at pp. 5-7 of the Office Action.

Applicants respectfully disagree with the Examiner's rejection. For the reasons presented above, claims 8 and 12 as amended (and related dependent claims thereto) recite a method that is distinguishable over the cited Wiltzer patent, in that the cited patent neither teaches nor even suggests the method as recited in these claims. Applicant reiterates that, as previously argued in Applicant's prior responses and as further demonstrated above, the presently amended claims differ from the Wiltzer patent claims in that the present claims are directed to a method wherein water (containing reaction products evaporated from the first reaction stage) is not separated out in the first stage, but is rather passed into at least one further stage, and the water is then only expelled from the reaction system in the "at least one further" stage.

As mentioned above, independent claims 8 and 12 have been amended to more clearly and precisely claim that which Applicant believes to be the inventive subject matter of the present application. Based on these claim amendments and the foregoing discussion above, the Examiner is thus respectfully requested to reconsider and withdraw the double patenting rejection against claims 8-17.

Summary

Entry of this Amendment into the file of the application is respectfully requested. The remarks presented above are believed to be sufficient to overcome all of the objections and rejections to the claims of the present application. The Examiner is, therefore, respectfully requested to reconsider and withdraw the subject rejections and to pass the application through to an allowance.

If the Examiner does not agree, however, but believes that an interview would advance the progress of this case, the Examiner is respectfully invited to telephone Applicant's representative at the number below so that an interview may be scheduled.

THIS CORRESPONDENCE IS BEING SUBMITTED ELECTRONICALLY THROUGH THE PATENT AND TRADEMARK OFFICE EFS FILING SYSTEM ON August 27, 2009.

RCF/AGG:rra

Respectfully submitted,

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